

REMARKS

Claims 1-20 are pending in the present application. Claims 21-22 are canceled herein.

Claims 1, 13, 14 and 16 have been amended. No new matter has been added. Applicants respectfully request reconsideration of the claims in view of the following remarks. Claims 21-22 have been canceled as being directed to an unelected invention. Applicants might file a divisional application at a later date.

Claims 1-20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Sakamoto, *et al.* (U.S. Patent Application Publication No. 2005/0127524, hereinafter “Sakamoto”), in view of Moore, *et al.* (U.S. Patent No. 6,348,365, hereinafter “Moore”), and Kozicki, *et al.* (U.S. Patent No. 5,761,115, hereinafter “Kozicki”). Applicants respectfully traverse this rejection.

As a preliminary matter, Applicants note that the Sakamoto publication is not prior art since it was filed in the U.S. on October 26, 2004, based upon a PCT application that was not published in English. Applicants will assume, however that the same rejection applies to the earlier Japanese PCT publication, which was published on November 13, 2003, four months before the present filing date. Applicants make no assertion as to whether they can swear behind this reference.

The present Office Action cites three documents. The Office Action states that the present switching device and the configurable interconnect, the electrical conductor network and the integrated circuit constructed by means of the switching device are obvious from a combination of these three documents. Applicants respectfully disagree.

Claim 1 has been amended so that the preamble has been placed in the body so that there is no question the preamble limitations must be considered. In particular, claim 1 requires that

"the switching device can be irreversibly switched from an electrically isolating off-state into an electrically conducting on-state for use in a configurable interconnect." The references of record do not teach or suggest such a device.

Sakamoto describes a switching device comprising a solid electrolyte. The switching device maintains its on- or off-state upon switching off the supply voltage, which can be reprogrammed (refer to the graphical representations of the function of the switching device depicted in Figs. 5 and 6).

Further, Kozicki discloses a programmable metallization cell structure ("PMC") using a chalcogenide glass in combination with a group IIB or IIB-metal and an anode comprising for example silver and a cathode comprising for example aluminum or another conductor material. The programmable metallization cell structure of Kozicki has the function that when a voltage is applied to the anode and the cathode a non-volatile metal dendrite grows from the cathode along the surface of the fast ion conductor (the chalcogenide glass) towards the anode. The on- and off-state of this known PMC cell can be reversed or reprogrammed.

Moore starts from the PMC cell disclosed by Kozicki and discloses a method for manufacturing the same. In this method of manufacturing a PMC cell, tungsten is used for forming a lower conductive electrode material of the PMC cell. The chalcogenide material can be a Ge₃Fe₇ chalcogenide glass and the conductive top electrode metal may be silver. Moore proposes to use ultra violet light or ultra violet light in combination with a heat treatment to cause a diffusion of metal ions from the metal material into the glass material. The concentration of metal ions from in the chalcogenide glass shall be approximately 27% +/- 10% to ensure the formation of the conductive metal dendrites when the PMC cell is later programmed (refer to

Figs. 1 to 6 and the relating description thereof in column 2, line 37 to column 3, line 29 of Moore et al.).

As shown above, none of the three cited documents disclose a switching device that can be irreversibly switched from the off-state into the on-state nor a redox-system comprising the electrodes and the solid state electrode nor a reduction of the metal ions within the solid state electrolyte. Since none of the references teach the limitations, the combination of references cannot teach the invention. It is, therefore, respectfully submitted that claim 1 is allowable.

Claims 2-12 depend from claim 1 and add further limitations. It is respectfully submitted that these dependent claims are allowable by reason of depending from an allowable claim as well as for adding new limitations.

Claims 13-20 each include similar limitations. It is therefore respectfully submitted that each of these claims are allowable over the references of record.

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Ira S. Matsil, Applicants' attorney, at 972-732-1001 so that such issues may be resolved as expeditiously as possible. No fee is believed due in connection with this filing. However, should one be deemed due, the Commissioner is hereby authorized to charge, or credit any overpayment, Deposit Account No. 50-1065.

Respectfully submitted,



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Date

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